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EXAMINER				
ROBINSON, LAUREN E				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/551,873

**Applicant(s)**

ZARB ET AL.

**Examiner**

LAUREN ROBINSON

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 76-114 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1-3,5-7,10,11,13,19,20,23,29,31,35,37,38,40,43,44,47,48,50-54,56,58 and 65-114.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 1-3,5-7,10,11,13,19,20,23,29,31,35,37,38,40,43,44,47,48,50-54,56,58 and 65-75.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 82 is objected to because of the following informalities: Claim 82 is objected to due to a comma being missing after acrylics and prior to epoxy acrylate. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 112-114 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are rejected as they lack antecedent basis. The claims depend off of claim 144 and 146, however, a claim 144 and 146 are not present.

For the purposes of applying prior art it is the examiner's position that the claims were meant to depend from claim 111.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 76-84, 88-89, 92-114 are rejected under 35 U.S.C. 103(a) as being obvious over DeFord et al. (US Pub. 2002/0139082) in view of Yonekawa et al. (JP 05/287234) as evidenced by ChemMasters ([www.Chemmasters.net](http://www.Chemmasters.net)).

**Regarding claims 76-78:** DeFord et al. teach an engineered (constructed) composite product comprising cement and reinforcing fibers (abstract, 0038-0042, and 0081-0085). The reference teaches that FRCs are known in the art to be made water resistance (0005) and therefore, the reference produces a specific fiber cement formulation product to obtain this property on the surfaces of the product (all). However, DeFord et al. is *silent regarding a carbonation reducing sealer being applied to first and second major opposing surfaces where the sealers have a thickness of at least 15 microns.*

**Consider a carbonation reducing sealer being applied to first and second major opposing surfaces**

Using the English machine translation of Yonekawa, although a direct translation will be included in the next action, Yonekawa et al. teach a carbonation reducing coating which is used to seal concrete surfaces from environmental damage and has water resistance (0005-0009).

DeFord et al. and Yonekawa et al. disclose analogous inventions related to cement products where water repellence is desired. The examiner notes that although DeFord et al. illustrates that the product formulation can aid in this property, it is the examiner's position that one of ordinary skill would recognize that if additional water resistance was desired then they would look to the prior art to find suitable methods of

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obtaining such properties and additionally, they would find the carbonation reducing sealer of Yonekawa to be particularly advantageous as the sealer also provides cement surfaces with additional environmental protection.

Also, since DeFord illustrates throughout the reference that water is detrimental to the surfaces of the product and that their water resistant formulation can be added surrounding the entire product (Figures), one would recognize that it would be particularly advantageous that all the surfaces were provided with additional water resistance. As such, it would have been obvious to one of ordinary skill in the art to modify DeFord et al. to include that the surfaces facings of the product, including not only the first and second major surface but substantially all surfaces of the product, can be sealed with the carbonation reducing sealer of Yonekawa et al. in order to obtain further water resistance as well as protection from other environmental conditions.

Consider the thickness of the sealer

Although DeFord et al. as modified does not include a sealer thickness, the examiner notes that one of ordinary skill would recognize that thickness is a result effective variable as it is known that by adjusting the thickness, the physical properties of the sealer will change. For example, it would be recognized that if a material has enhanced thickness, then particles traveling through the material will have more resistance and more areas to be trapped and therefore, the thicker material would provide increased filtering properties such as in the case of resisting carbon dioxide from traveling through entire thickness of the sealer. Therefore, one would know that by

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adjusting the thickness, the physical properties will change and through routine experimentation of optimizing said thickness, desired results can be obtained.

As such, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify DeFord et al. to include that the sealers that are applied to the product surfaces can have their thickness optimized to any value, including the applicants' claimed thicknesses, in order to obtain desired physical results such as filtration properties, and environmental protection on all surfaces (**Claims 76-78**).

**Regarding claims 79-81:** As discussed, DeFord et al. as modified includes the carbonation reducing sealer of Yonekawa et al.. Therefore, DeFord et al. will include all the characteristics and properties of the taught sealers. Specifically, Yonekawa et al. teach that the taught sealers are capable of being cured by means of heat (Yonekawa, 0028).

The examiner notes that this means of curing corresponds to the sealer being radiation curable as heat is known in the art to function in the IR wavelength region and this further corresponds to thermally being cured (**Claims 79-81**).

**Regarding claims 82-83:** Further, Yonekawa et al. disclose that the sealer is comprised of acrylics (0009) (**Claim 82**) and that an adhesion property is essential for completeness of the sealer (0006).

The examiner notes that "integral" is broadly defined as something that is necessary for completeness. For example, something that forms the whole. Therefore, for the sealer to have an adhesion property upon manufacturing, then one would know that an adhesion promoting formulation would have to be inherently comprising the

whole and as such the formulation would corresponds to an integral adhesion promoting formulation (**Claim 83**).

**Regarding claim 84:** Also, Yonekawa et al. illustrates the composition of the sealer throughout. However, Yonekawa et al. does not limit the composition to only one combination and therefore, Gleeson et al. as modified is *silent regarding the use of the same sealer formulation on the surfaces*.

Although DeFord is silent regarding this limitation, it is the examiner's position that one would find it obvious to use the same formulation for the sealers on all sides, if the same exact properties were desired on all surfaces and furthermore, making one sealer formulation rather than multiples would provide for less manufacturing time as the sealer material can be made in bulk. For this reason, although the reference does not specifically include this, one of ordinary skill in the art would find it obvious to further modify DeFord et al. to include that the same sealer formulation can be added to all surfaces of the product in order to provide the product with the exact same properties on all surfaces such as the same level of water resistance, as well as to lower manufacturing costs, etc. (**Claim 84**).

**Regarding claim 85:** Yonekawa teaches that the sealer can have additives such as colorants, antiaging agents, UV absorbents, etc. added if desired (Yonekawa 0050). However, as the modified sealant now in DeFord et al., the *limitation of the sealer on one major face of the product having a different formulation than the sealer on the second major face is not specifically taught*.



While this limitation is not disclosed, the examiner notes that one would know that if the fiber cement product is used as an exterior panel for a building for example, one major face with the a sealer thereon would be exposed and seen by individuals while the other side will be resting up against the building and therefore, unseen. If one desired to obtain a panel or siding with color, as it is known in the art that building sidings can range in color, as well as Yonekawa above disclosing that a colorant can be added, one would recognize that since only one face is seen, that it would be advantageous to add the colorant to only the exposed side as this would obtain the desired result without unnecessary manufacturing cost and as such, the formulations on first and second surfaces would be different.

As such, one would find the above limitation to be obvious and recognize that DeFord can be modified to include the above characteristics as it would be seen as advantageous to one with ordinary skill. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeFord et al. to include that the sealer can have two different formulations on the first major surface and the second major surface in order to provide properties such as color to the exposed and visualized side while maintaining the sealer on the second major surface unmodified as to cut done on unnecessary manufacturing costs **(Claim 84)**.

**Regarding claims 88-89:** While the above is now disclosed in DeFord et al, DeFord is still *silent regarding the carbonation reducing sealers being applied in multiple stages and the sealer being cured in multiple stages.*

Although the above limitations are not taught, the examiner notes that the limitations would have been obvious to one of ordinary skill in the art. For example, one would recognize that when painting a material on a surface, often the material does not form a uniform coat and/or additional material might be desired and therefore, requires multiple coats and just like painting a wall, after each coat, it is necessary to dry (cure) the material prior to forming an additional coat. From this, one would find it advantageous to apply the sealer in multiple coats with curing in multiple stages in order to obtain a uniform coat with desired amount of material.

As such, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify DeFord et al. to include that if desired, the sealer can be applied in multiple coats and cured in multiple stages after each coat in order to obtain a uniform and desired amount of coating sealer on the surface of the concrete product **(Claims 88-89)**.

**Regarding claim 92-95:** Also, Yonekawa et al. teach that the sealer can be comprised of methyl methacrylate (0012) and as evidenced by ChemMasters, this material has very good alkali resistance. Therefore, one would recognize that due to the sealer comprising an alkali resisting material, the sealer will correspond to an alkali resistant sealer **(Claim 92)**.

Further, the sealer of the reference impedes migration of carbon dioxide due Yonekawa illustrating "carbonation tightness" (not allowing migration of carbon dioxide). From this one would find it inherent that the sealer would have to inherently be

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sufficiently cross-linked as the property provided from being sufficiently cross-linked is provided (**Claim 93**).

Also, Yonekawa teaches that the sealer preferably does not produce cracks in the cured state due to the materials glass transition temperature (0034-0035). From this one would recognize that if a material is not brittle, then it must be flexible and therefore, since no brittleness is obtained in the cured state, the sealer corresponds to a flexible sealer (**Claim 94**). Also, as discussed, the sealer is a carbonation reducing sealer and as such, inherently reduces propensity for carbonation in the product (**Claim 95**).

**Regarding claims 96-107:** DeFord et al. teach that the fibre reinforced cement composite product can be comprised of two surface layers each comprising 10 to 80 % of cement and 0 to 80 % of a silica filler (0039-0044) and a core comprising 10 to 100% of cement and 0 to 80% of silica (0081-0087). The examiner notes that since in one embodiment, the product can be made of only the two facings and a core and each one can have a cement to silica ratio as claimed by the applicants, then one would recognize that entire product will inherently have the same cement to silica ratio as claimed throughout (**Claims 96-100**).

**Regarding claims 101-103, 111-114:** As discussed, DeFord et al. as modified teaches that the first and second major surfaces of the product including substantially all surfaces can be sealed with a carbonation reducing sealer which reduces the propensity of carbonation. Further, DeFord et al. teach that the core comprising their product can have a porosity of 10 to 90% or more (0077). However, the reference is *silent regarding the specific porosity of the overall fiber cement composite product*.

The examiner notes that although surface layers with slightly larger density are applied to the core to finish the production of the composite product, the examiner notes that the reference illustrated throughout that the layers are thin and that the core makes up more of the composite product than the surface layers (0187). Due to this, although DeFord does not specifically disclose the overall porosity, one would recognize and not expect the volume % porosity of the overall composite to change much from the included of the core and as such, they would find the applicants' claimed porosity to be inherent or in the alternative obvious, within the entire composite product (**Claims 101-103, 111-113**).

**Regarding claims 104-105:** Also, DeFord et al. illustrates that their product is made to be light weight and that their product is made to be enhanced such as low fiber cement density products having densities on the order of 0.38-1.7 g/cm<sup>3</sup> (0005-0006). However, the reference does *not specifically disclose the entire composite having a density within the applicants' claimed range.*

Although the above limitation is not specifically disclosed, due to the reference illustrating that the product is made light weight to obtain a similar product such as products that are provided with the above densities, it is the examiner's position that one would recognize and expect that if the product is made to produce such a property, then the densities would be expected to inherently be the same or similar and therefore, fall within applicants' range.

Alternatively, the reference discloses throughout their reference that density modifiers can be added and that when discussing prior art densities and light weight

fiber cement, that a lower density within the applicants' values is advantageous. From this, it is the examiner's position that one would recognize that a lower density would be desired such as in the above range and they would know that the density could be adjusted by the addition of the above density modifiers and through routine experimentation of optimizing the amount of said modified, any desired density can be obtained. As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeFord et al. to include that the density of the product can be adjusted to any value including applicants' values by optimizing the amount of modifier to any value, in order to produce desired weight results (**Claims 104-105**).

**Regarding claims 106-108:** DeFord also teaches that the product can be formed using the Hatshchek process (0056) (**Claim 106**) or an extrusion process (0060) (**Claim 107**).

Further, DeFord et al. teach that the product can be made as a sheet (0147-0148) and can be used as an exterior cladding (0132) (**Claim 108**).

**Regarding claims 109-110:** As the above is now disclosed in Gleeson et al., Gleeson is still *silent regarding the sheet being specifically rectangular in shape and that the sheet specifically has a first surface that is a mounting surface adapted for inward orientation and a second major surface adapted for outward orientation*.

Although the above limitations are not specifically disclosed, it is the examiner's position that these limitations would have been obvious. For example, although the shape of a rectangle is not taught, Gleeson teaches that the material can be used as an exterior panel and siding (0107) and the examiner notes that it is known in the art that

siding and panels, while some can have varying shapes, are often rectangular in shape as the edges are capable of fitting close together.

Further, since exterior building panels and siding are known in the art to be materials wherein a first major face has an inward orientation mounting to the building and a second major face with an outward orientation facing the environment, one would recognize that the above reference disclosing the material to be an exterior panel or siding will inherently, or in the alternative, obviously, have the characteristics as claimed in claim 110 in order to act as said panel and siding.

As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Gleeson et al. to include that the material when forming siding and exterior building panels, can be made into a rectangular shape as is known in the art and where edges can be made to fit together easily, and that the first face can be a mounting surface facing inward toward the building and the panel can have a second surface facing outward toward the environment to act as efficient siding as known in the art (**Claims 109-110**).

2. Claims 86-87 and 90-91 are rejected under 35 U.S.C. 103(a) as being DeFord et al. (US Pub. 2002/0139082) and Yonekawa et al. (JP 05/287234) as applied to claim 76 in view of Dornieden et al. (WO 2001/068777)

As discussed, DeFord et al. was modified to include all the limitations of claim 76. However, the reference is still *silent regarding the*  
*-seal including an adhesive formulation adapted to enhance bonding of a*  
*topcoat,*

*- a keycoat being applied wherein the keycoat is adapted to enhance bonding of a topcoat,*

*-the key coat being applied to the sealer following partially curing the sealer and prior to full curing in order to enhance bonding of the key coat, and*

*-a top coat being applied to the sealer following partially curing the sealer and prior to full curing in order to enhance bonding of the top coat .*

Consider regarding the seal including an adhesive formulation adapted to enhance bonding of a topcoat, a keycoat being applied wherein the keycoat is adapted to enhance bonding of a topcoat.

While DeFord et al. does not include the above limitation of intended use to enhance bonding of a top coat or a key coat being used wherein the key coat enhances bonding of a top coat, the examiner notes that this would have been obvious.

For example, it is known in the art as discussed above that similarly to painting a wall, a coating such as the sealer can be applied in many coats in order to provide for a uniform appearance. Therefore, one would recognize that if two coats are applied, there would be the sealer and then a sealer topcoat and if three coats were needed, there would be a sealer layer, a middle key coat layer and then a top coat layer thereon and more layers if necessary to provide the desired coating effects of the sealer material.

Further, although there is no teaching that each layer applied, including the sealer and key coat should be formulated to enhance bonding of the next coat, one would also find this obvious since one would know that if enhanced adhesion is not obtained, then the sealer layers which chip and peel. While DeFord's sealer as

discussed has adhesion and the sealer as included in Yonekawa can have additives added when desired, one would recognize that if more enhanced adhesion of a coating placed thereon was needed, they would look for materials known in the art which could be used to obtain such a desired property.

For example, using the direct English translation (US Pub. 2003/0129323) of Dornieden et al., Dornieden et al. teach sealers (title) which can be used on cement products (0032) and that additives such as additional adhesion promoters can be added if desired (0121).

DeFord and Dornieden et al. disclose analogous art related to sealers on a cement product. From the above reasoning, it is the examiner's position that one would find it obvious to use both a key coat and/or a top coat on the sealer in order to provide uniform coating and appearance and that making sure each coating is adapted to enhance bonding of the next would be advantageous due to resist in material chipping. As illustrated in Dornieden, one would see that additional additives can be added such as adhesion promoters and it is the examiner's position that one would recognize that if enough adhesion is added in each undercoat (sealer or keycoat) used, then the layer beneath would cause enhanced bonding of said layer with the one above and thereby resist occurrences such as said chipping. As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeFord to include that either a top coat or a key coat and top coat can be added to the sealer in order to provide for desired coating appearance and uniformity and then each under layer (sealer and key



coat if used) can be provided with additional adhesion promoters in order to enhance bonding of the layer above it to prohibit occurrences such as chipping (**Claims 86-87**).

Consider the key coat being applied to the sealer following partially curing the sealer and prior to full curing in order to enhance bonding of the key coat, and a top coat being applied to the sealer following partially curing the sealer and prior to full curing in order to enhance bonding of the top coat

Although the above limitations are not disclosed, the examiner notes as discussed, that additional coatings would be obvious to one of ordinary skill and the number of coatings will depend on desired coating appearance, etc. such as the addition of a top coat (2 coats) or a key coat and top coat (3 coats) on the sealer until desired properties are obtained. While the act of partially curing the sealer and/or the key coat prior to the additional layer applied immediately above it and then fully curing the layers together, the examiner notes that this process is known and actually desired in the art.

For example, Dornieden et al. teaches as discussed, sealers used on the surface of concrete. Also, the reference teaches that multiple layers can be used by means of a wet-on-wet technique which includes partially curing an underneath layer, applying an additional layer and then fully curing both layers together (0040).

While Dornieden et al. does not specifically disclose the reason for this method, the examiner notes that this method is well known in the art and that claims 90 and 91 are product by process claims and while the process may limit the product, if the product is obvious as discussed, the claims are unpatentable. In the instant case,

although the reasoning for this method is not disclosed, it is the examiner's position that one of ordinary skill in the art would recognize that it would have been obvious as only waiting for partial curing allows for lowering manufacturing time which is an obvious and often desired attribute in industry.

As such, it would have been obvious to one of ordinary skill in the art at the time of invention to modify DeFord et al. to include that additional coatings such as a key coat or top coat and top coat can be applied to obtain a desired uniformity and that the process of Dornieden can be used when applying each coating as this process would cut down on manufacturing time (**Claims 90-91**).

#### ***Response to Arguments***

Applicant's arguments in the reply of June 27, 2008 have been considered but are moot in view of the new ground(s) of rejection thereby, making the present action **Non-Final**.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAUREN ROBINSON whose telephone number is (571)270-3474. The examiner can normally be reached on Monday to Thursday 6am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-2721284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Lauren E. T. Robinson  
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AU 1794

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